Tab B

AMSEC Policy Recommendation: C2IEDM for M&S and BC

Presented to the AMSEC - 11 July 2005

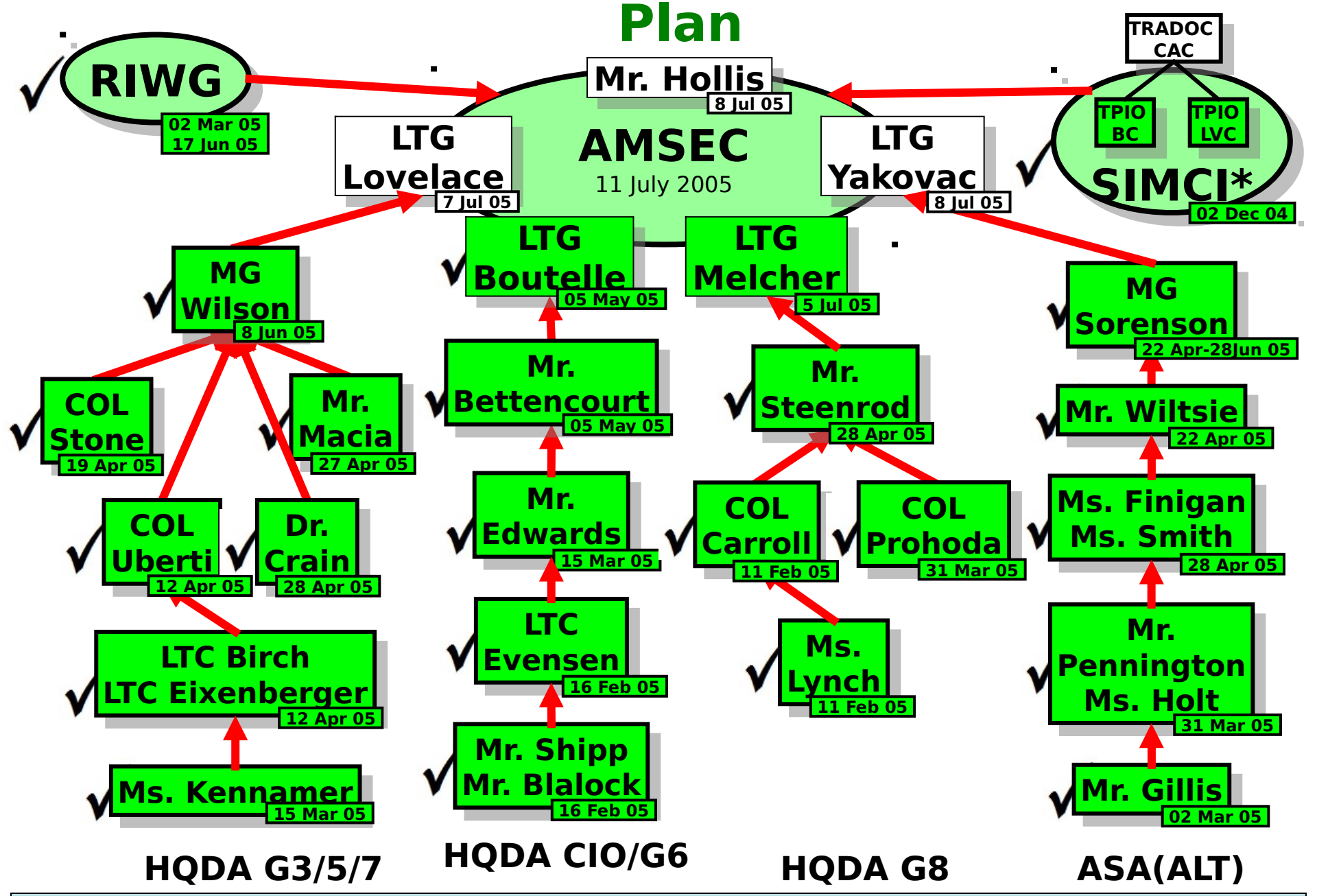
Presented by:
Mr. Tom Kelso

C2IEDM Decision Brief Purpose

- **Purpose of Effort:** Establish the Command & Control Information Exchange Data Model (C2IEDM) as the standard reference data model for M&S interoperability with C2IEDM compliant BC systems

- **Purpose of Brief:** To gain AMSEC approval of the SIMCI recommendation to establish policy mandating the use of the C2IEDM for M&S and BC systems interoperability

C2IEDM Recommendation Campaign Plan



**SIMCI OIPT Study / Discussions / Staffing Dec 2003 – Dec 200*

Automated Systems Problem without Common Data

Three Ways to Describe the Same Target

Enemy Tank

Identify an Enemy Target

1

Joint Munitions Effects Definition (AFATDS)

TARGET TYPE/
SUB-TYPE
Tank/ Mdm

2

3

Modern Integrated Database Definition (ASAS)

TARGET
distinctive attribute text
T-80 Tank

C2 Information Exchange Data Model:

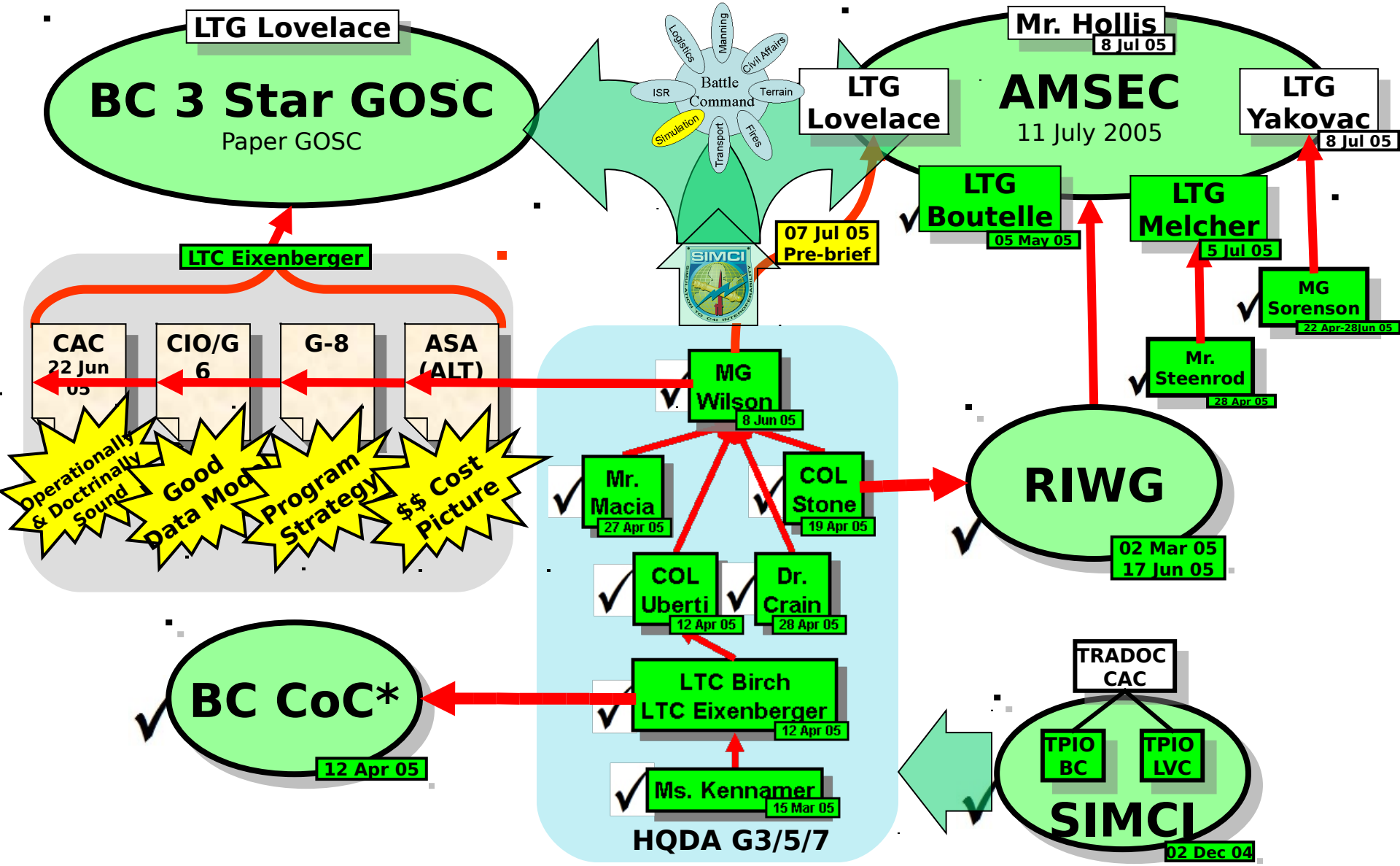
Name: Tank; Description: armored fighting vehicle;
Object-Type: equipment

Each Data Model Describes the Tank, But None Describe It the Same Way… The Computer Cannot Distinguish Among the Three Entries

C2IEDM Decision Brief Bottom Line

- **Interoperability demands a Common Language**
  - **Data Nightmare**. Lack of a common language creates automated systems interoperability nightmare
  - **SoS Capabilities fail.** System of Systems (SoS) capabilities hinge on central language (data model)
  - **M&S Support is Costly.** M&S interoperability is challenging for testing, training and as embedded applications
- **Nothing comes close to the C2IEDM**
  - **Well Designed.** Nothing even comes close to the over 1000 pages of descriptions, rigor of design or years of effort.
  - **Widely Adopted.** The C2IEDM is the most reliable, documented and widely adopted data model within the Army, at the Joint level and among the US and its allies.

WMA & M&S C2IEDM Proposal Path & Status



Battle Command Discussions 2004 – 2005

C2IEDM Decision Brief
Recommended Course of Action

- **Adopting C2IEDM is the only viable COA.** Adopting the C2IEDM is the only option which supports the Army need now and addresses the need across the board.

- **Request approval.** Approve recommendation to develop policy establishing the C2IEDM as the mandated reference data model for simulation systems exchanging information with C2IEDM compliant Battle Command systems.

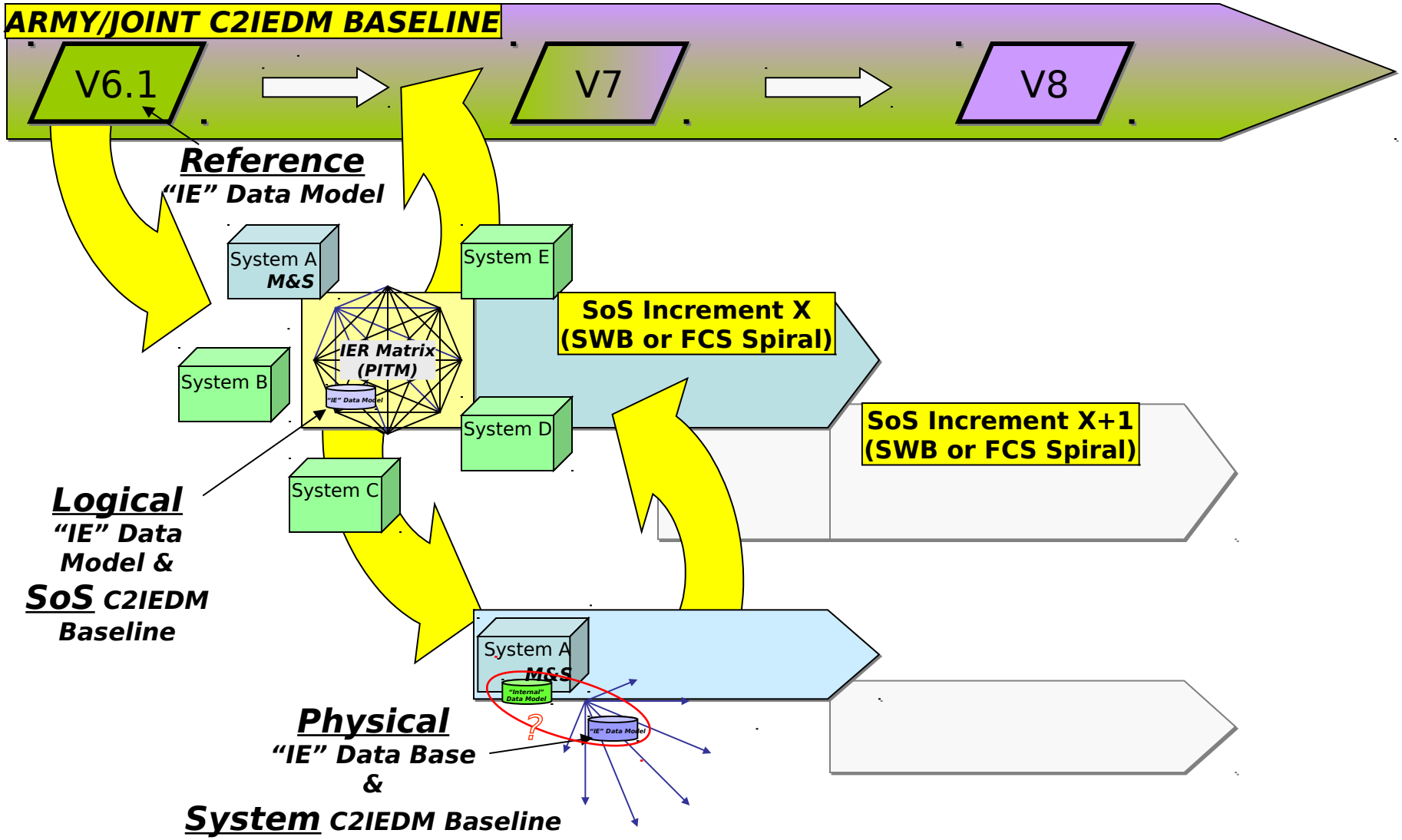
BACKUPS

C2IEDM Decision Brief Facts

- **International/Coalition**
  - **NATO Standard.** The C2IEDM is an extendable NATO standard (STANAG 5523) with 12 years of modeling work.
  - **Multiple Nations adopt C2IEDM Outright.** The C2IEDM is the national model of Canada, Denmark, Italy, Portugal, Netherlands, Spain.
  - **US is a NATO C2IEDM Proponent.** US has ratified C2IEDM in STANAG 5523 and (HQDA CIO/G6) has supported the C2IEDM since it's inception.
- **In the US DoD**
  - Being adopted in the **DoD and Joint community** as the GFMIEDM
  - Being proposed as the **core for the FCS BC Data Model**
  - **Organizations Across Army Agree on C2IEDM.** Twenty three (23) participating SIMCI organizations reviewed and ratified a C2IEDM recommendation for presentation to the AMSEC for policy decision.
  - **TRADOC** CAC Commander **endorses C2IEDM** as doctrinally sound
- **Net-Centric Operations**
  - **Global Force Management** (GFM) extends C2IEDM as GFMIEDM
  - **GIG Data Models.** Regardless of the GIG services used, the information producing and consuming system's data models must be reconciled to automate data exchanges.

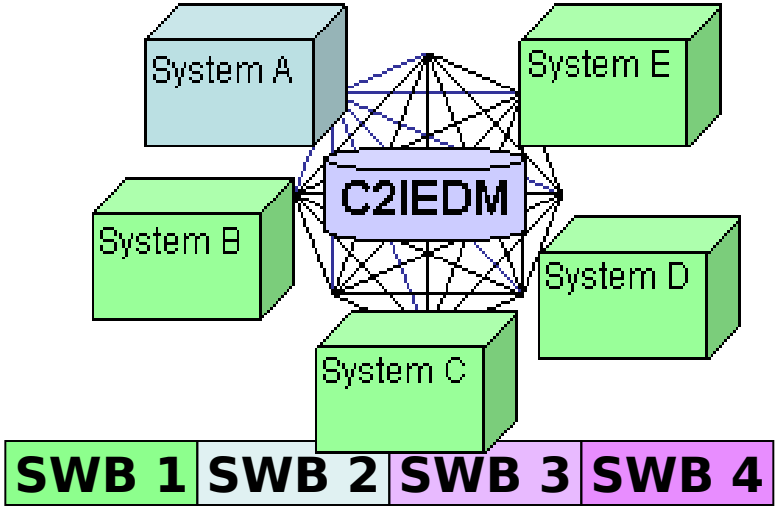
C2IEDM Recommendation

Data Models & Governance

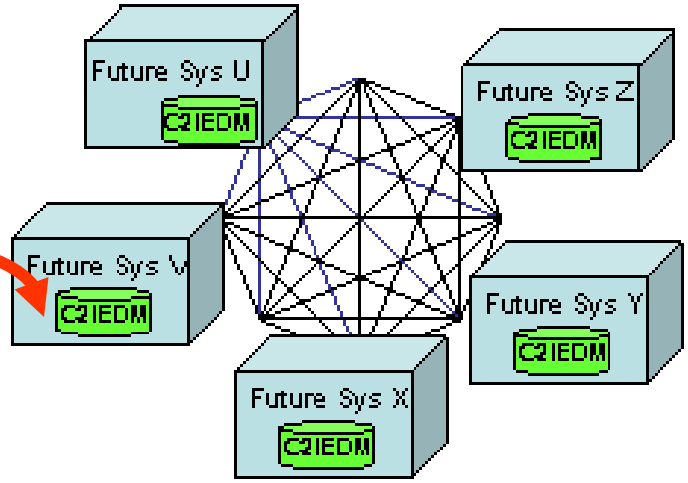


Solution: C2IEDM use for Current and Future Systems

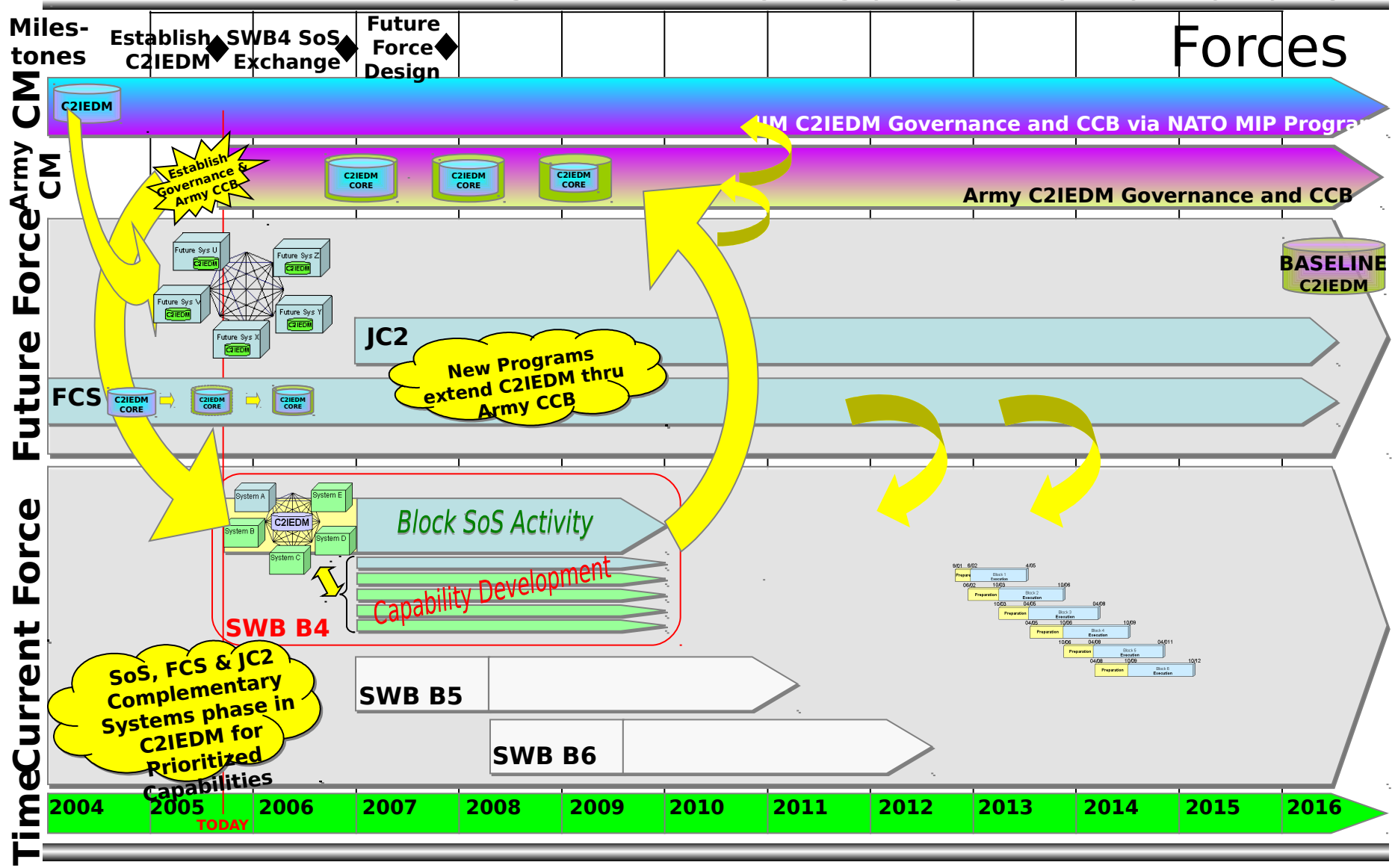
- Current Systems: C2IEDM "guides" integration through engineered information exchange data
  - Implement only data elements supporting integration of SoS capabilities
  - Phased SWB approach based on prioritized capabilities
  - Implement C2IEDM in PASS



- Future Systems
  - Implement C2IEDM in a physical database for C2 portions of JC2 and FCS internal core data models



Coalition, Joint and Army C2IEDM for Current and Future Forces

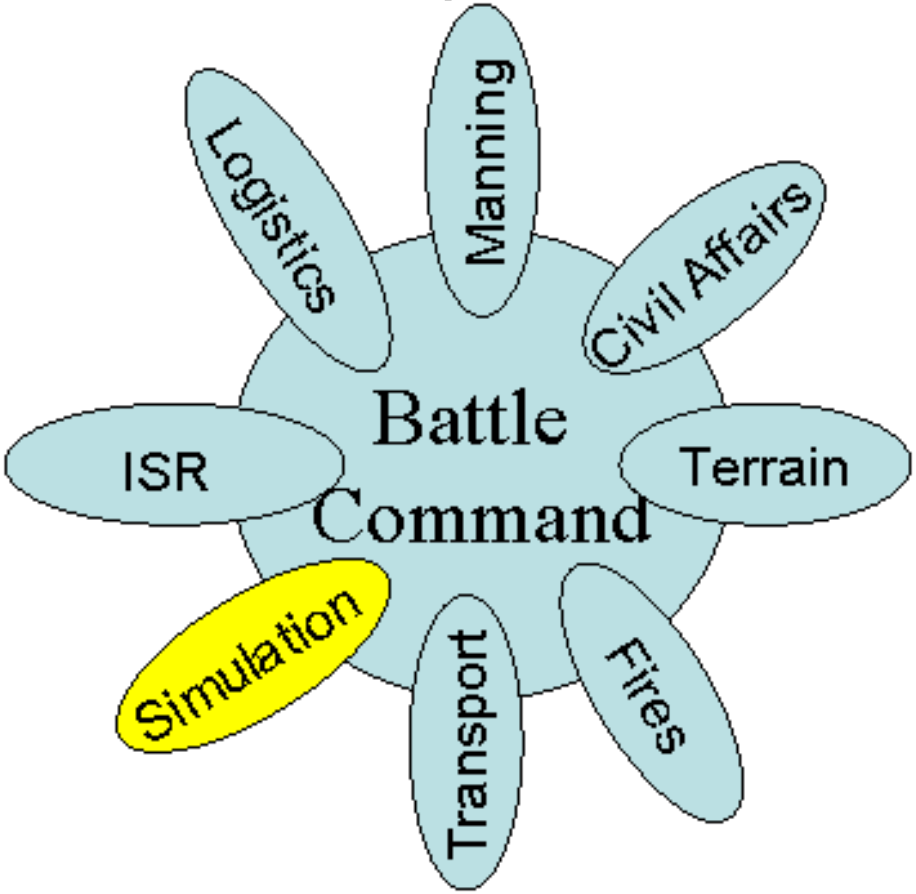


How would the Army Extend its Service Implementation?

1. PMs get current C2IEDM copy from Army CCB
2. PMs extend their copy of the C2IEDM
3. PMs submit extensions back to the Army CCB
4. Army CCB raises extensions to the WMA COI
5. WMA COI ratifies extension as “core” to Army implementation
6. Army submits requested change to the Joint and NATO organizations
7. Army continues to use own extensions internally.
8. If approved, Army extensions become part of NATO core

SIMCI C2IEDM AMSEC Recommendation Relationships to the WMA C2IEDM Proposal

- The SIMCI Recommendation only affects M&S if the WMA adopts the C2IEDM



Status of the C2IEDM Tasker to the PEOs (Cont)

- **"CIO-G6 is preparing a technical assessment of the C2IEDM in preparation for discussions with LTG Lovelace on the C2IEDM"**
  - As part of this assessment, the CIO-G6 will conduct a technical interchange meeting with appropriate PEOs/PMs to address their C2IEDM implementation concerns. –

    John Shipp, CIO/G6
- **Alternative Legacy System Implementation Methods:**
  - Legacy systems may employ an external C2IEDM Translator
  - Legacy systems may support dual capability
  - Legacy systems employ Network Services
  - Systems may chose to employ "extended" C2IEDM organically; however this is usually cost prohibitive and is therefore more applicable to new systems.

Cost to implement any of these options will vary with the specific design chosen as each option will have differential costs and complexity associated with implementation

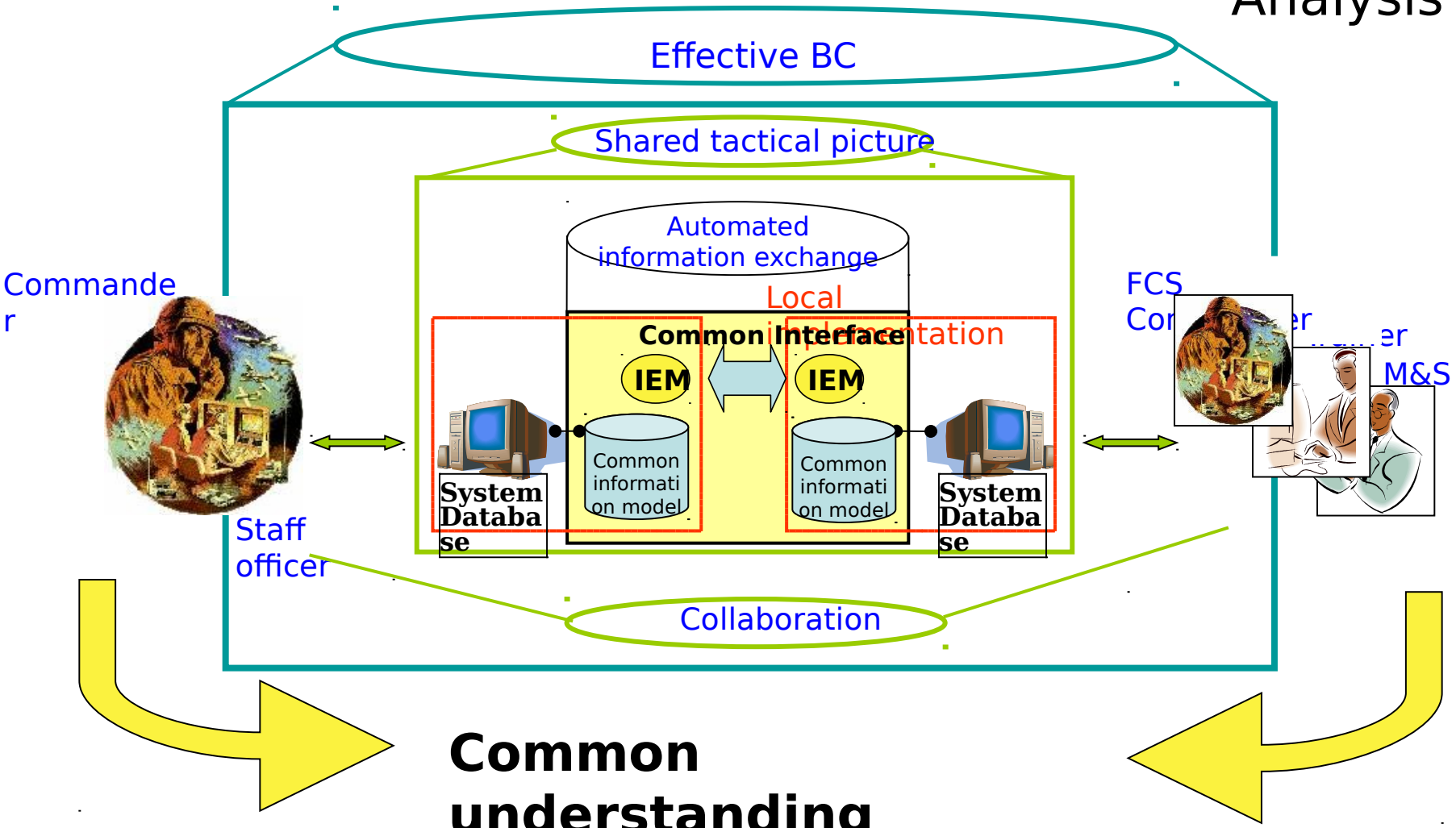
- **TRADOC CAC Commander**, in a 22 June 2005 memo to the DCS G3/5/7, **endorsed the C2IEDM** supporting **operational and doctrinal** requirements and consistent with TRADOC's 11 April 2005 **Battle Command Migration Plan.**
- **SWB**
  - WMA IWG Data Sub-working group is working this issue
- **Net Centricity**
  - C2IEDM is fully consistent with Net-centricity, web service capable, COI (BC IWG) endorsed

How C2IEDM supports the Warfighter

- Data Latency… reduce translation time from one database to another
- Avoids the Problem of “Free Text” (reduces Warfighters required to “fat finger” data)
- Reduces Black Box Interpreters (reduces system complexity)
- Enables Database-to-Database Level Exchange (reduces time and errors involved in manual transactions)
- Reduces the Bandwidth Requirement (less information ambiguity)
- C2IEDM between systems increases modular plug

Faster, cleaner automated information exchange reduces time, required bandwidth and errors resulting in increased speed and reliability of info transfers

Common Language for M&S in BC Operations, Training, Testing & Analysis



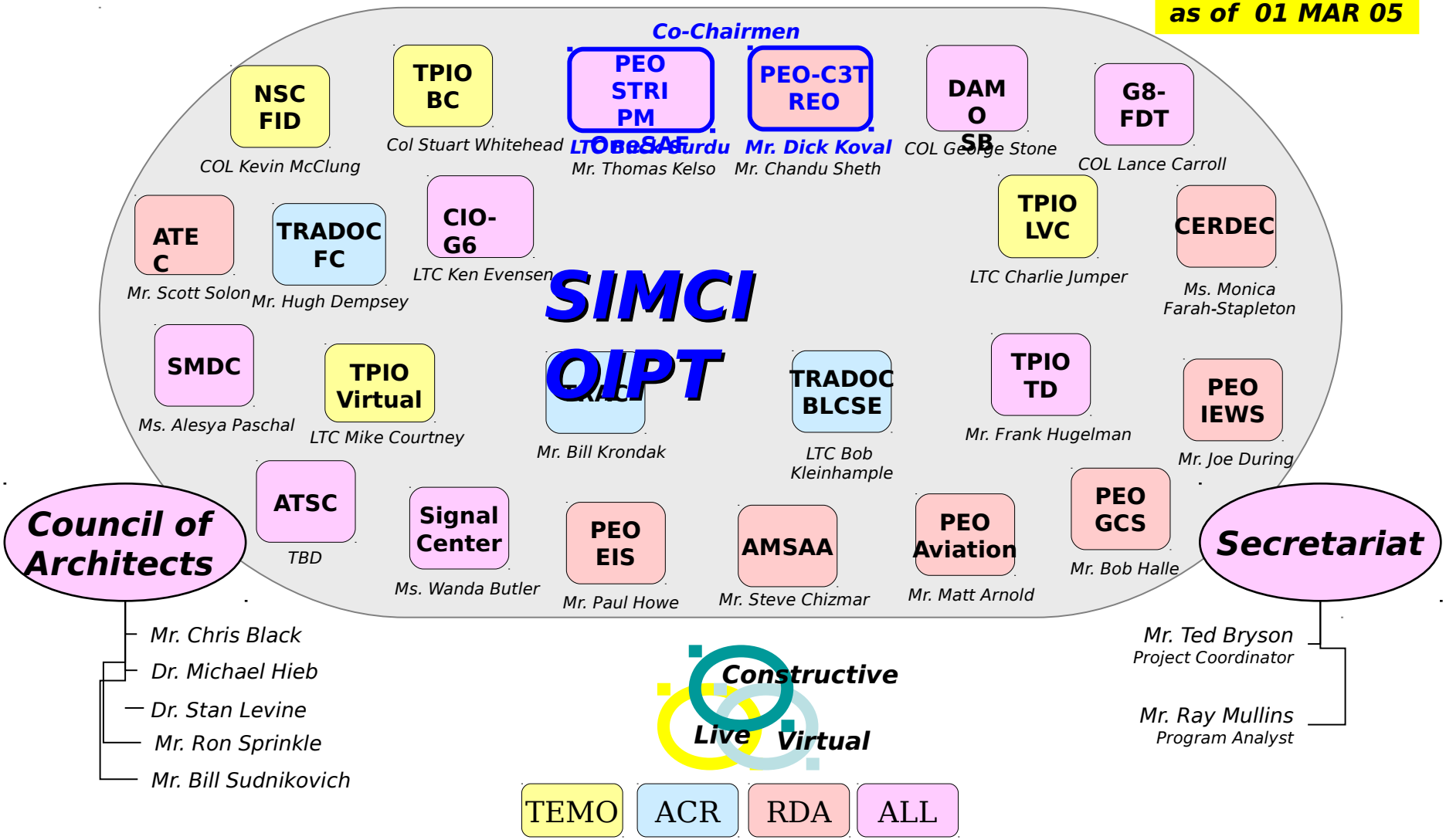
Who uses C2IEDM?

- **Navy Joint Collaboration Tool Kit**
- **Air Force (training interface to TBMCS)**
- **USMC Joint Tactical COP Workstation w/C2IEDM Injector**

- **JFCOM (SIGP; JNTC)**
- **DMSO and selected Mod & Simulation Community**
- **Global Force Management: COI & DRRS, Global Force Management Organization Server**
- **Coalition Partners… Multinational Information System (MNIS)**
  - **Sweden: Sudaware system**
  - **Portugese BC System**
- **TRADOC Battle Command Battle Lab JC2 Prototype**
- **DISA using C2IEDM as starting point for JC2 prototype**
- **FCS using C2IEDM as starting point for SoS C2 data model**
- **Plus Five Different ACTDs (e.g. COSMOS, ASAP)**

Simulation-to-C4I Interoperability OIPT

as of 01 MAR 05

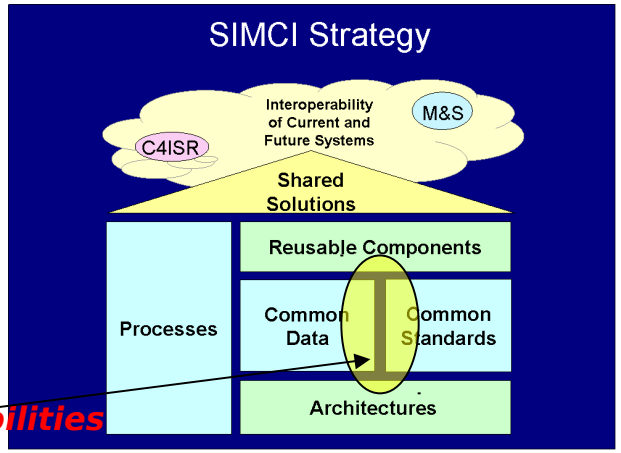


Background

- SIMCI OIPT is Chartered by DUSA-OR and Army CIO/G6 to make Recommendations to Senior Army Leadership on how to Improve Interoperability

- SIMCI Has been studying Data Modeling / Object Modeling implications on interoperability for about 4 years – 18 months ago began AMSEC Recommendation preparation.

- Data Modeling is Core to Interoperability – it is not technically challenging, just a lot of hard work and coordination across very broad communities



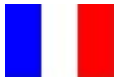
C2IEDM Data Modeling – Central to Army SoS Capabilities

MIP Organization Members / Systems

FULL MEMBERS


CA LFC2IS


DA DACCIS


FR SICF, SIR


GE HEROS-2/1


IT SIACCON


NL ISIS


NO NORTaC/NORCCIS


SP SIMACET


TU TKKBS


UK ATacCS/ComBAT


US MCS

ASSOCIATE MEMBERS


AS JCCS, BCSS


AU PHOENIX


BE SICBEL


CZ GF-TCCS


FI TBD


GR HARCCIS


HU HAVIR

LH TBD


PL SZAFRAN


PO SICCE


RO TBD

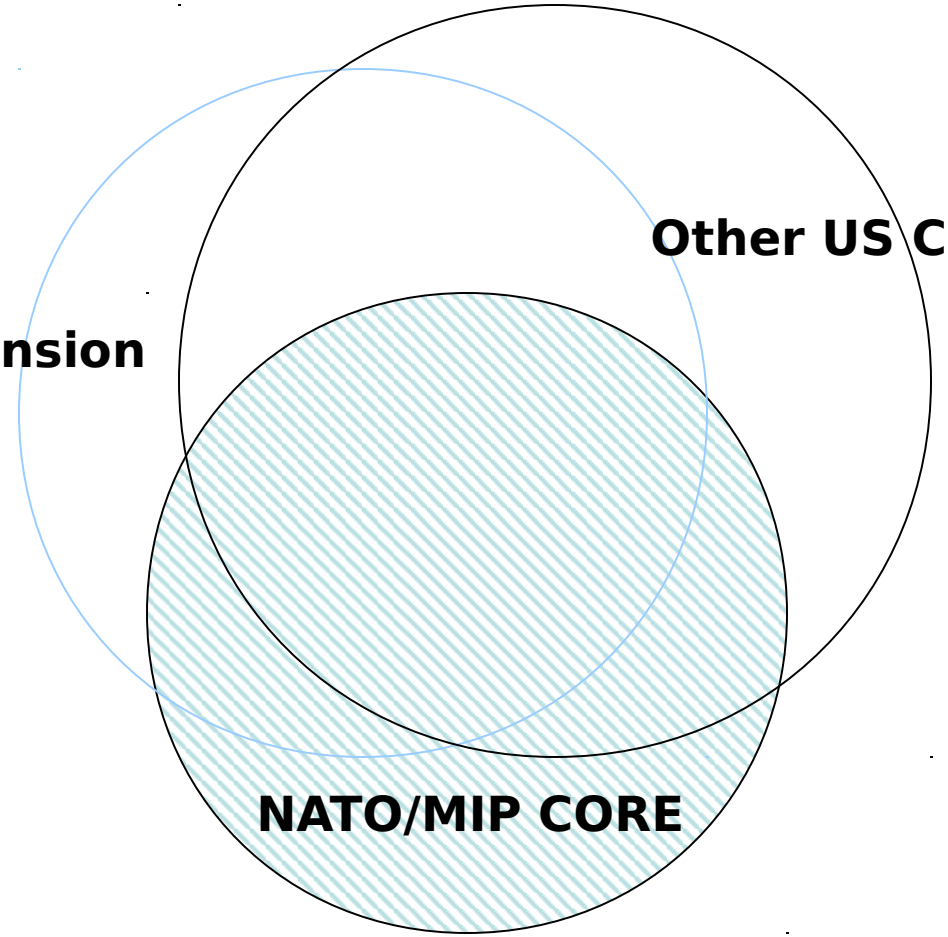

SI TBD


SW IS MARK SLB


AFNORTH

ACT BiSC AIS

C2IEDM Core and Extensions



Automated Systems Problem without C2IEDM

Three Ways to Describe the Same Target

Enemy Tank

Identify an Enemy Target

1

Joint Munitions Effects Definition (AFATDS)

TARGET TYPE/
SUB-TYPE
Tank/ Mdm

2

3

Modern Integrated Database Definition (ASAS)

TARGET
distinctive attribute text
T-80 Tank

C4I Reference Object Model (ex. OneSAF):

Name: Tank; Description: armored fighting vehicle;
Object Type: materiel; Object Subtype: equipment

Each Data Model Describes the Tank, But None Describe It the Same Way… The Computer Cannot Distinguish Among the Three Entries